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Tapani Ryhanen

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EXAMINER

RUSH, ERIC

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

04/14/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/763,821

**Applicant(s)**

RYHANEN ET AL.

**Examiner**

ERIC RUSH

**Art Unit**

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 11-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 11-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/003)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is responsive to the amendments and remarks received 08 January 2009. Claims 1 – 7 and 11 - 44 are currently pending.

### ***Double Patenting***

2. The provisional rejections of claims 1 – 44 on the grounds of nonstatutory obviousness-type double patenting are withdrawn in view of the amendments and remarks received 08 January 2009.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1 – 4, 11 - 13, 18, 24 - 31, 38 - 40 and 42 - 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abramov U.S. Patent No. 4,577,345 in view of Salatino et al. U.S. Patent No. 5,862,248.

- With regards to claims 1 and 24, Abramov teaches a fingerprint sensor arrangement and method comprising at least one driver electrode and at least one sensor electrode, (Abramov, Column 6 Lines 4 – 44) and an integrated signal processing circuit for the measurement of signals from

the electrodes, (Abramov, Column 8 Lines 35 - 59) and interconnecting wiring between the electrodes and the integrated circuit, (Abramov, Column 5 Lines 19 - 34) wherein the arrangement further comprises a substrate of flexible material that forms at least part of said sensor, (Abramov, Column 7 Lines 3 - 32) and at least one driver electrode, the at least one sensor electrode, said signal integrated circuit and said interconnecting wiring are embedded within an integrated module. (Abramov, Column 6 Lines 4 - 44) Abramov fails to clearly teach wherein the electrodes are for a capacitive measurement, wherein said interconnecting wires are metallizations between polymer layers, said at least one driver electrode and/or said at least one sensor electrode is metallization between polymer layers. Salatino et al. teach wherein the electrodes are for a capacitive measurement, (Salatino et al., Column 7 Lines 19 - 65) wherein said interconnecting wires are metallizations between polymer layers, (Salatino et al., Column 10 Lines 10 - 62) said at least one driver electrode and/or said at least one sensor electrode is metallization between polymer layers. (Salatino et al., Column 10 Lines 10 - 62) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Abramov to include the teachings of Salatino et al. This modification would have been prompted in order to utilize a capacitance sensing arrangement which would aid in

smoothing the output signal and avoiding large spikes which may be generated upon contact of the sensing electrodes.

- With regards to claim 2, Abramov in view of Salatino et al. teach an arrangement according to claim 1. Abramov teaches an arrangement characterized in that said electrode and said integrated circuit are coupled with a substrate, (Abramov, Column 6 Lines 4 – 44) the substrate comprising said wiring between the electrodes and the integrated circuit. (Abramov, Column 5 Lines 19 - 34)
- With regards to claim 3, Abramov in view of Salatino et al. teach an arrangement according to claim 2. Abramov teaches an arrangement characterized in that the substrate comprises the at least one driver electrode, said at least one sensor electrode, or both. (Abramov, Column 6 Lines 4 – 44)
- With regards to claim 4, Abramov in view of Salatino et al. teach an arrangement according to claim 2. Abramov teaches an arrangement characterized in that said substrate is a flexible film. (Abramov, Column 7 Lines 3 - 32)

- With regards to claims 11 and 28, Abramov in view of Salatino et al. teach an arrangement according to claims 1 and 24. Abramov fails to clearly teach an arrangement characterized in that it comprises guard rings in the vicinity of the at least one driver electrode, in the vicinity of at least one sensor electrode, or both. Salatino et al. teach an arrangement characterized in that it comprises guard rings in the vicinity of the at least one driver electrode, in the vicinity of at least one sensor electrode, or both. (Salatino et al., Column 7 Line 38 - Column 8 Line 15) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the further teachings of Salatino et al. This modification would have been prompted in order to help focus the electric field energy and thereby reduce the need to drive adjacent electrodes.
  
- With regards to claims 12 and 30, Abramov in view of Salatino et al. teach an arrangement according to claims 11 and 28. Abramov fails to clearly teach an arrangement characterized in that said guard ring is metallization and the arrangement comprises an insulating polymer layer between the guard ring metallization and the sensor electrode. Salatino et al. teach an arrangement characterized in that said guard ring is metallization and the arrangement comprises an insulating polymer layer between the guard

ring metallization and the sensor electrode. (Salatino et al. Column 7 Lines 19 – 30, Column 7 Line 52 – Column 8 Line 15)

- With regards to claim 13, Abramov in view of Salatino et al. teach an arrangement according to claim 1. Abramov fails to clearly teach an arrangement characterized in that said integrated module is encapsulated with injection molded polymer. Salatino et al. teach an arrangement characterized in that said integrated module is encapsulated with injection molded polymer. (Salatino et al., Column 9 Lines 3 - 40)
- With regards to claim 18, Abramov in view of Salatino et al. teach an arrangement according to claim 1. Abramov teaches an arrangement characterized in that said sensor comprises one driver electrode and a row of sensing electrodes. (Abramov, Column 6 Lines 22 - 46)
- With regards to claim 25, Abramov in view of Salatino et al. teach a method according to claim 24. Abramov fails to clearly teach a method characterized in that said step of encapsulating comprises a step of encapsulating into polymer. Salatino et al. teach a method characterized in that said step of encapsulating comprises a step of encapsulating into polymer. (Salatino et al., Column 8 Line 45 –Column 9 Line 29) It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the combined teachings of Abramov in view of Salatino et al. to include the further teachings of Salatino et al. This modification would have been prompted in order to facilitate the construction of multiple sensor arrangements.

- With regards to claim 26, Abramov in view of Salatino et al. teach a method according to claim 24. Abramov fails to clearly teach a method characterized in that said step of providing said at least one driver electrode comprises a step of metallization. Salatino et al. teach a method characterized in that said step of providing said at least one driver electrode comprises a step of metallization. (Salatino et al., Column 7 Lines 19 – 37, Column 10 Lines 10 – 62) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the further teachings of Salatino et al. This modification would have been prompted in order to facilitate the interconnections/wirings of the sensor arrangement since metal is a well-known electrical conductor.
  
- With regards to claim 27, Salatino et al. teach a method according to claim 24. Abramov fails to clearly teach a method characterized in that said step of providing said at least one sensing electrode comprises a step of metallization. Salatino et al. teach a method characterized in that said step



of providing said at least one sensing electrode comprises a step of metallization. (Salatino et al., Column 7 Lines 19 – 37, Column 10 Lines 10 – 62) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the further teachings of Salatino et al. This modification would have been prompted in order to facilitate the interconnections/wirings of the sensor arrangement since metal is a well-known electrical conductor.

- With regards to claim 29, Abramov in view of Salatino et al. teach a method according to claim 28. Abramov fails to clearly teach a method characterized in that the step of providing at least one guard ring comprises a step of metallization. Salatino et al. teach a method characterized in that the step of providing at least one guard ring comprises a step of metallization. (Salatino et al., Column 7 Lines 38 – 51, Column 7 Line 52 – column 8 Line 18) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the further teachings of Salatino et al. This modification would have been prompted in order to facilitate the interconnections/wirings of the sensor arrangement since metal is a well-known electrical conductor.

- With regards to claim 31, Abramov in view of Salatino et al. teach a method according to claim 24. Abramov fails to clearly teach a method characterized in that it comprises a step of providing a substrate and connecting said integrated circuit on said substrate before said encapsulating. Salatino et al. teach a method characterized in that it comprises a step of providing a substrate and connecting said integrated circuit on said substrate before said encapsulating. (Salatino et al., Column 7 Lines 3 – 30, Column 8 Lines 31 – Column 9 Line 29, Column 10 Lines 10 – 62)
  
- With regards to claim 38, Abramov in view of Salatino et al. teach a method according to claim 24. Abramov fails to clearly teach a method characterized in that said at least one sensing electrode, or said at least one driving electrode, or both are provided with metallization on the surface of the integrated circuit. Salatino et al. teach a method characterized in that said at least one sensing electrode, or said at least one driving electrode, or both are provided with metallization on the surface of the integrated circuit. (Salatino et al., Column 7 Lines 19 – 51, Column 10 Lines 10 – 62) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the further teachings of Salatino et al. This modification would have been prompted in

order to incorporate the sensing electrodes as close to the point of contact as possible.

- With regards to claim 39, Abramov in view of Salatino et al. teach a method according to claim 31. Abramov fails to clearly teach a method characterized in that an electrical connection is provided by wire bonding between the integrated circuit and wiring of the substrate. Salatino et al. teach a method characterized in that an electrical connection is provided by wire bonding between the integrated circuit and wiring of the substrate. (Salatino et al., Column 7 Lines 3 – 30, Column 8 Lines 31 – Column 9 Line 29, Column 10 Lines 10 – 62)
- With regards to claim 40, Abramov in view of Salatino et al. teach a method according to claim 31. Abramov teaches a method characterized in that an electrical connection is provided by metallization between the integrated circuit and wiring of the substrate. (Abramov, Column 5 Lines 19 - 34)
- With regards to claim 42, Abramov in view of Salatino et al. teach a method according to claim 24. Abramov fails to clearly teach a method characterized in that a polymer layer is provided by injection molding using

micro replicated mold. (Salatino et al., Column 8 Line 45 – Column 9 Line 51)

- With regards to claim 43, Abramov in view of Salatino et al. teach a method according to claim 24. Abramov teaches a method characterized in that the process comprises the steps of providing polymer layers and at least one metallization layer one upon the other. (Abramov, Figs. 3 &4)

5. Claims 5 – 7 and 35 - 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Abramov U.S. Patent No. 4,577,345 in view of Salatino et al. U.S. Patent No. 5,862,248 as applied to claims 1 and 24 above, and further in view of Watanabe Takaya JP 06-104641 A.

- With regards to claims 5 and 35, Abramov in view of Salatino et al. teach an arrangement and method according to claims 1 and 31. Abramov fails to specifically teach an arrangement characterized in that it comprises a substrate comprising wiring for an external connection to the integrated circuit. Watanabe Takaya teaches an arrangement characterized in that it comprises a substrate comprising wiring for an external connection to the integrated circuit. (Watanabe, Paragraphs 0013-0014, 0019, 0024, and 0027) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view

of Salatino et al. to include the teachings of Watanabe Takaya. This modification would have been prompted in order to allow for connection of electrical components not integrated into the device which therefor may allow for the device to be placed into devices where space is limited.

- With regards to claim 6, Abramov in view of Salatino et al. in view of Watanabe Takaya teach an arrangement according to claim 5. Abramov teaches an arrangement characterized in that it comprises wire bonding between the integrated circuit and wiring of the substrate. (Abramov, Column 5 Lines 19 - 34)
- With regards to claim 7, Abramov in view of Salatino et al. in view of Watanabe Takaya teach an arrangement according to claim 5. Abramov teaches an arrangement characterized in that it comprises metallization between the integrated circuit and wiring of the substrate. (Abramov, Column 5 Lines 19 - 34)
- With regards to claim 36, Abramov in view of Salatino et al. in view of Watanabe Takaya teach a method according to claim 35. Abramov fails to teach a method characterized in that an end of said flexible substrate is used for an electrically connecting external circuits to the fingerprint sensor. Watanabe Takaya teaches a method characterized in that an end

of said flexible substrate is used for an electrically connecting external circuits to the fingerprint sensor. (Watanabe, Paragraphs 0013-0014, 0019, 0024, and 0027) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Salatino et al. to include the teachings of Watanabe Takaya. This modification would have been prompted in order to allow for connection of electrical components not integrated into the device which therefor may allow for the device to be placed into devices where space is limited.

- With regards to claim 37, Abramov in view of Salatino et al. in view of Watanabe Takaya teach a method according to claim 35. Abramov fails to clearly teach a method characterized in that wiring of said flexible substrate is used for providing said at least one sensing electrode, for providing said at least one driving electrode, or both. Watanabe Takaya teaches a method characterized in that wiring of said flexible substrate is used for providing said at least one sensing electrode, for providing said at least one driving electrode, or both. (Watanabe, Paragraphs 0013-0014, 0019, 0024, and 0027)

6. Claims 14, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abramov U.S. Patent No. 4,577,345 in view of Salatino et al. U.S. Patent No.

5,862,248 as applied to claims 1 and 18 above, and further in view of Benkley U.S. Patent No. 7,099,496.

- With regards to claim 14, Abramov in view of Salatino et al. teach an arrangement according to claim 1. Abramov fails to teach an arrangement characterized in that the surface of said sensor has a curved form in at least two dimensions. Benkley teaches an arrangement characterized in that the surface of said sensor has a curved form in at least two dimensions. (Benkley, Fig. 5, Column 9 Line 36 – Column 10 Line 19) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. with the teachings of Benkley. This modification would have been prompted in order to improve the quality of the fingerprint image by obtaining a complete image of the entire finger surface. (Benkley, Column 10 Lines 2 - 3)
  
- With regards to claim 15, Abramov in view of Salatino et al. in view of Benkley teach an arrangement according to claim 14. Abramov fails to teach an arrangement characterized in that said form approximates the form of a finger. Benkley teaches an arrangement characterized in that said form approximates the form of a finger. (Benkley, Fig. 5, Column 9 Line 36 – Column 10 Line 19)

- With regards to claim 19, Abramov in view of Salatino et al. teach an arrangement according to claim 18. Abramov fails to teach an arrangement characterized in that said measurement circuit is adapted to measure successive signals while the finger moves in a perpendicular direction in relation to said row of sensing electrodes, for providing a two dimensional matrix of capacitive measurement results from the finger. Benkley teaches an arrangement characterized in that said measurement circuit is adapted to measure successive signals while the finger moves in a perpendicular direction in relation to said row of sensing electrodes, (Benkley, Column 7 Lines 17 – 44, Column 11 Lines 1 - 25) for providing a two dimensional matrix of capacitive measurement results from the finger. (Benkley, Column 16 Lines 25 - 58) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the teachings of Benkley. This modification would have been prompted in order to reduce the overall size of the sensor by only requiring a few rows of sensor electrodes or as few as 1 row, allowing for the arrangement to become more compact and suitable for being incorporated into smaller electronic devices.



7. Claims 16, 17, 33, 34 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abramov U.S. Patent No. 4,577,345 in view of Salatino et al. U.S. Patent No. 5,862,248 as applied to claims 1 and 24 above, and further in view of Mathiassen et al. U.S. Patent No. 7,251,351.

- With regards to claims 16 and 33, Abramov in view of Salatino et al. teach an arrangement and method according to claims 1 and 24. Abramov fails to teach an arrangement characterized in that the arrangement comprises a bump for elevating the electrodes. Mathiassen et al. teach an arrangement characterized in that the arrangement comprises a bump for elevating the electrodes. (Mathiassen et al., Column 3 Line 65 – Column 4 Line 61) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the teachings of Mathiassen et al. This modification would have been prompted in order to allow for "a very compact" device. (Mathiassen et al., Column 4 Lines 2 – 3)
- With regards to claims 17 and 34, Abramov in view of Salatino et al. in view of Mathiassen et al. teach an arrangement and method according to claims 16 and 33. Abramov fails to teach an arrangement characterized in that said bump is a layer of polymer. Mathiassen et al. teach an

arrangement characterized in that said bump is a layer of polymer.

(Mathiassen et al., Column 3 Line 65 – Column 4 Line 61)

- With regards to claim 41, Abramov in view of Salatino et al. teach a method according to claim 24. Abramov fails to teach a method characterized in that conductive bumps are connected with a flip chip process to a metallization of a substrate or the integrated circuit for providing external electrical connections to the integrated circuit. Mathiassen et al. teach a method characterized in that conductive bumps are connected with a flip chip process to a metallization of a substrate or the integrated circuit for providing external electrical connections to the integrated circuit. (Mathiassen et al., Column 3 Line 65 – Column 4 Line 61, Column 6 Lines 20 - 41) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. with the teachings of Mathiassen et al. This modification would have been prompted in order to allow for external components to be combined with a fingerprint sensor device and also to obtain “a very compact” device. (Mathiassen et al., Column 4 Lines 2 – 3)

8. Claims 20 – 23 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abramov U.S. Patent No. 4,577,345 in view of Salatino et al. U.S.

Patent No. 5,862,248 as applied to claims 1 and 24 above, and further in view of Harkin U.S. Patent No. 6,327,376.

- With regards to claim 20, Abramov in view of Salatino et al. teach an arrangement according to claim 1. Abramov fails to teach an arrangement characterized in that the arrangement further comprises a infrared light source, a infrared light detector and second measurement means for measuring absorption of infrared light from the finger. Harkin teaches an arrangement characterized in that the arrangement further comprises a infrared light source, (Harkin, Column 7 Line 55 – Column 8 Line 29) a infrared light detector (Harkin, Column 7 Line 55 – Column 8 Line 29) and second measurement means for measuring absorption of infrared light from the finger. (Harkin, Column 7 Line 55 – Column 8 Line 29) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the teachings of Harkin. This modification would have been prompted in order to increase “the security of recognition or authentication by providing further validation and reducing the possibility of fraudulent deception through uses, for example, of a replica finger.” (Harkin, Column 8 Lines 40 - 44)

- With regards to claim 21, Abramov in view of Salatino et al. teach an arrangement according to claim 1. Abramov fails to teach an arrangement characterized in that said arrangement further comprises a temperature sensor for measuring the temperature from the finger. Harkin teaches an arrangement characterized in that said arrangement further comprises a temperature sensor for measuring the temperature from the finger. (Harkin, Column 8 Lines 24 - 29) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Salatino et al. to include the teachings of Harkin. This modification would have been prompted in order to increase "the security of recognition or authentication by providing further validation and reducing the possibility of fraudulent deception through uses, for example, of a replica finger." (Harkin, Column 8 Lines 40 - 44)
  
- With regards to claim 22, Abramov in view of Salatino et al. teach an arrangement according to claim 1. Abramov fails to teach an arrangement characterized in that said arrangement further comprises a humidity sensor for sensing humidity of the finger. Harkin teaches an arrangement comprising additional biosensors capable of detecting biometric characteristics. (Harkin, Column 8 Lines 1 – 44) Harkin does not specifically teach a humidity sensor for sensing ambient humidity but does teach the use of a variety of biosensors, temperature, pulse, oxygen, and

leaves it open for "other kinds of biosensors...". The Examiner takes official notice of the fact that the inclusion of additional biosensor(s) such as a humidity sensor is well known in the art. Therefore it would have been obvious to include a humidity sensor into the arrangement of Salatino et al. This modification would have been prompted in order to increase "the security of recognition or authentication by providing further validation and reducing the possibility of fraudulent deception through uses, for example, of a replica finger." (Harkin, Column 8 Lines 40 - 44)

- With regards to claim 23, Abramov in view of Salatino et al. teach an arrangement according to claim 1. Abramov fails to teach a mobile terminal, characterized in that it includes a fingerprint sensor arrangement according to claim 1. Harkin teaches an arrangement in which a sensor arrangement is included in a mobile terminal. (Harking, Column 10 Lines 15 – 50) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Salatino et al. to include the teachings of Harkin. This modification would have been prompted in order to incorporate an added level of security into personal portable electronic devices.
  
- With regards to claim 44, Abramov in view of Salatino et al. teach a method according to claim 24. Abramov fails to teach a method

characterized in that the fingerprint sensor is embedded into an equipment cover. Harkin teaches a method characterized in that the fingerprint sensor is embedded into an equipment cover. (Harkin, Column 10 Lines 15 – 50) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. to include the teachings of Harkin. This modification would have been prompted in order to incorporate an added level of security into personal portable electronic devices.

9. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abramov U.S. Patent No. 4,577,345 in view of Salatino et al. U.S. Patent No. 5,862,248 as applied to claim 31 above, and further in view of Mainguet U.S. Patent No. 6,289,114.

- With regards to claim 32, Abramov in view of Salatino et al. teach a method according to claim 31. Abramov fails to teach a method characterized in that the method comprises a step of providing an aperture in said substrate for providing an electrical connection through the substrate. Mainguet teaches a method characterized in that the method comprises a step of providing an aperture in said substrate for providing an electrical connection through the substrate. (Mainguet, Fig. 3, Column 6 Lines 29 – 67) It would have been obvious to one of ordinary skill in the

art at the time of the invention to modify the combined teachings of Abramov in view of Salatino et al. with the teachings of Mainguet. This modification would have been prompted in order to connect electrodes to charge reading circuits between layers of a substrate which protect the reading circuits from erroneous measurements providing a more reliable output of the sensed finger.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1 and 24 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC RUSH whose telephone number is (571)270-3017. The examiner can normally be reached on 7:30AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/  
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ER